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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,418	06/30/2003	Dennis R. McKean	HSJ9-2003-0022US1	1933
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MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C 1400 PAGE MILL ROAD PALO ALTO, CA 94304-1124			EXAMINER GOFF II, JOHN L	
			ART UNIT	PAPER NUMBER
			1791	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/611,418	Applicant(s) MCKEAN ET AL.	
	Examiner John L. Goff	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) 1-21, 30 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-29, 32-35 and 37-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/23/08 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 22-29, 32-35, and 37-39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 22 as amended requires “a curing temperature of about 150 °C or more”. Applicants specification and in particular paragraphs 78 and 79 do not describe a curing

Art Unit: 1791

temperature of about 150 °C *or more*. Rather applicants specification describes curing temperatures of 150 °C or 200 °C in paragraphs 78 and 79 and not all values above 150 °C.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 39 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 39 requires “wherein the sliders are free from encapsulant”. It is unclear what is required by this limitation as the encapsulant fills gaps between the sliders which contacts the slider surfaces adjacent these gaps. It appears the limitation is to require wherein the coplanar slider surfaces are free from encapsulant. This is the interpretation given the claim by the examiner.

Claim Rejections - 35 USC § 103

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1791

9. Claims 22-29, 32-34, and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurdi et al. (U.S. Patent 5,932,113) in view of Mandell (U.S. Patent 3,335,088) and Homan et al. (U.S. Patent 4,347,336), Lee et al. (U.S. Patent 6,124,407), or Wong (U.S. Patent 5,051,275).

Kurdi discloses a method for forming a slider assembly comprising arranging a plurality of sliders each having a surface such that the surfaces are coplanar to each other and each free from encapsulant, placing the plurality of sliders on a laminate of a flexible tape and an adhesive such that slider surfaces contact the adhesive, dispensing a silicon-based encapsulant fluid in a manner effective to fill small gaps or recesses between the sliders without contacting the coplanar slider surfaces, and subjecting the dispensed encapsulant fluid to conditions effective for the fluid to crosslink and/or polymerize and form a readily debondable solid encapsulant (Column 5, lines 33-67 and Column 6, lines 1-67 and Column 7, lines 1-12 and Column 8, lines 33-35). Kurdi does not teach the removable/debondable encapsulant is a silicon-based encapsulant that is cured at a temperature of about 150 °C or more. However, Kurdi is not limited to any particular encapsulant and suggest a wide range of common encapsulants may be used including acrylic, epoxy, etc. (Column 6, lines 42-60). It is well taken in the art of removable/debondable encapsulants that acrylic, epoxy, and silicon elastomer based encapsulants are functionally equivalent as shown by Mandell (Column 1, lines 9-16 and Column 6, lines 6-18). Absent any unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the removable/debondable encapsulant in Kurdi a silicon elastomer encapsulant which was well taken as functionally equivalent to acrylic and epoxy encapsulants as shown by Mandell. As to the curing the

Art Unit: 1791

encapsulant at a temperature of about 150 °C or more, Homan, Lee, and Wong '275 are each exemplary of silicon elastomers used as encapsulants such as for electronics including semiconductor substrates wherein each encapsulant cures at 150 °C the encapsulants having a low viscosity to flow easily into small spaces (Column 1, lines 8-19 and Column 6, lines 55-68 and Column 7, lines 14-38 of Wong and Column 1, lines 7-34 and Column 4, lines 3-8 and Column 13, lines 29-32 of Lee and Column 1, lines 7-10 and Column 2, lines 58-66 and Column 3, lines 4-13 and Column 4, lines 3-23 of Wong '275). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the silicon elastomer encapsulant taught by Kurdi as modified by Mandell any of the silicon elastomer encapsulants shown by Homan, Lee, or Wong '275 which have a low viscosity to flow easily into small places wherein the curing temperature used would have been any of the curing temperatures within the ranges suggested by Homan, Lee, or Wong '275 such as 150 °C.

Regarding claim 24, as the adhesive taught by Kurdi is described as not effected by the encapsulant fluid the adhesive is considered resistant or impervious to solvation by the encapsulant fluid (Column 5, lines 39-45).

Regarding claims 25-27, as Kurdi teaches the initial viscosity of the encapsulant fluid is as low as 100 centistokes (Column 7, lines 1-2) it would have been obvious to one of ordinary skill in the art at the time the invention was made to formulate the low viscosity encapsulant in Kurdi as modified by Mandell and Homan, Lee, or Wong '275 to have a viscosity of 100 centistokes.

Regarding claim 28, at least Wong '275 removes solvent from the encapsulant fluid during cure (Column 4, lines 3-18).

Regarding claim 32, there is no disclosure in Kurdi as modified by Mandell and Homan, Lee, or Wong '275 that the solid encapsulant substantially outgases under vacuum, and the silicon-based polymer solid encapsulant is consistent and in agreement with the solid encapsulant disclosed and claimed by applicants, such that the solid encapsulant taught by Kurdi as modified by Mandell and Homan, Lee, or Wong '275 is considered to not substantially outgas under vacuum.

Regarding claims 33 and 38, the silicon elastomers taught by Kurdi as modified by Mandell and Homan, Lee, or Wong '275 are polymerized *in situ* from organosilicon prepolymers, e.g. siloxanes (Column 2, lines 20-60 of Homan, Column 4, lines 53-67 of Lee, and Column 3, lines 20-25 of Wong '275).

Regarding claim 34, the silicon elastomers taught by Kurdi as modified by Mandell and Homan, Lee, or Wong '275 have phenyl substituents (Column 2, lines 20-60 of Homan, Column 4, lines 53-67 of Lee, and Column 3, lines 20-25 of Wong '275).

Regarding claim 37, Kurdi teaches the solid encapsulants are debonded by means of a solvent comprising NMP, i.e. N-methylpyrrolidinone (Column 8, lines 33-35) such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to debond the solid encapsulants taught by Kurdi as modified by Mandell and Homan, Lee, or Wong '275 using the solvent.

Regarding claim 39, the plurality of sliders used as taught by Kurdi are provided as free from encapsulants and during debonding the sliders are removed/freed from the encapsulant.

10. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurdi, Mandell, and Lee or Wong '275 as applied to claims 22-27, 29, 32, 33, 37, and 39 above, and further in view of Joffre et al. (U.S. Patent 5,840,800) and Wong '562 (U.S. Patent 4,564,562).

Kurdi, Mandell, and Lee or Wong '275 as applied above teach all of the limitations in claim 35 except for a specific teaching of using a polymeric catalyst containing pendant amino-functionalities with the encapsulant, it being noted both Lee and Wong '275 are not limited to any particular catalyst and suggests a platinum catalyst (Column 11, lines 18-25 of Lee and Column 2, lines 58-68 of Wong '275). It is well taken in the art of silicone-based encapsulants such as those suggested by Lee or Wong '275 that metallic and amino based catalysts are functionally equivalent as shown by Joffre (Column 21, lines 16-21). Absent any unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the catalyst in Kurdi as modified by Mandell and Lee or Wong '275 an amino based catalyst which was well taken as functionally equivalent to metallic catalysts as shown by Joffre. As to the amino based catalyst having pendant amino-functionalities, Wong '562 disclose a silicone elastomer encapsulant including a dialkylaminoalkylsiloxane catalyst, which is considered a polymeric catalyst containing pendant amino-functionalities, which is used as the catalyst because it reduces the curing temperature of the encapsulant (Column 1, lines 34-41 and Column 2, lines 28-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the amino based catalyst taught by Kurdi et al. as modified by Mandell, Lee or Wong '275, and Joffre the polymeric catalyst containing pendant amino-functionalities taught by Wong '562 which reduces the curing temperature of the encapsulant.

Response to Arguments

11. Applicant's arguments with respect to claims 22-29, 32-35, and 37-39 have been considered but are moot in view of the new ground(s) of rejection.

In view of applicants amendment the previous 35 U.S.C. 102(b) rejection over Kurdi is withdrawn.

Applicants argue, "As such, in view of the above, Kurdi does not teach all the elements of claim 22 because Kurdi fails to teach a silicon-based encapsulant fluid that forms a readily debondable silicon-based solid encapsulant when subjected to **a curing temperature of 150°C or more**. Accordingly, the Applicants respectfully request that this rejection be withdrawn."

Kurdi teaches at Column 3, lines 24-26: "The process is applicable to any air bearing surface (ABS) pattern and **can be** completed at ambient temperatures" (Emphasis added).

Kurdi teaches at Column 6, lines 42-47: "**Exemplary** fluids are those which can be drawn into the recesses between rows to planarize the rows, cured, and then later removed. Exemplary fluids generally include a resin component and a curing agent. Resin components include those comprising monomers containing **epoxy**, thiol, olefin, and **acrylic** functionality as well as mixtures thereof."

Kurdi teaches at Column 6, lines 48-52: "Curable fluids **commonly used** include **acrylic compositions**, thiolene compositions, and cationically cured epoxy compositions such as those containing an epoxy oligomer, a multifunctional acrylic monomer, a cationic photoinitiator, and benzophenone."

In view of the above Kurdi is not considered limited to any particular encapsulant nor is Kurdi considered limited to an “ambient temperature” curing encapsulant. There is a clear suggestion that commonly used curable fluids may be used including epoxy or acrylic compositions for which there is no requirement the composition cure at ambient temperature or the composition cure via ultraviolet radiation it being noted Column 7, lines 5-12 of Kurdi as referred to by applicants is considered to describe for example cationically cured epoxy compositions but clearly does not describe curing conditions for all of the commonly used curable fluids such as those which do not cure via ultraviolet radiation.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1791

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John L. Goff/
Primary Examiner, Art Unit 1791